

ABSTRACT OF THE DISCLOSURE

A method of forming shallow trench isolation with chamfered corners. First, a pad insulating layer, a first mask layer, and a second mask layer are sequentially formed on a substrate. The second mask layer, the first mask layer, and the pad insulating layer are patterned to form an opening exposing a portion of the substrate. Next, the substrate is etched using the patterned second mask layer as a mask to form a trench therein. Next, part of the second mask layer is removed to expose the first mask layer adjacent to the trench and result in the second mask layer having a tapered profile. Finally, the second mask layer, the first mask layer, the pad insulating layer, and the substrate are etched along the tapered profile of the second mask layer to chamfer corners of the trench.